

Labor Epidural Analgesia and Breastfeeding

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“**B**REASTFEEDING is an important public health concern.”¹ So begins—correctly—a fine clinical research publication in this issue of *ANESTHESIOLOGY*.¹ Breastfeeding incurs substantial health benefits for both the mother and the baby.^{2,3} Short-term maternal benefits of breastfeeding include decreased postpartum blood loss and more rapid involution of the uterus. An exhaustive 2007 review² concluded that long-term maternal benefits include a decreased incidence of type 2 diabetes mellitus as well as a decreased incidence of breast and ovarian cancer. Early cessation of breastfeeding or no breastfeeding is associated with an increased risk of maternal postpartum depression.² And the duration of breastfeeding is positively associated with a decreased risk of maternal hypertension and cardiovascular disease.^{4,5}

Benefits for the child include a decreased risk of acute otitis media, necrotizing enterocolitis, nonspecific gastroenteritis, severe lower respiratory tract infection, atopic dermatitis, asthma, obesity, diabetes (types 1 and 2), childhood leukemia, and sudden infant death syndrome.² The American Academy of Family Physicians recommends that infants be breastfed for the first year of life, and that they be breastfed exclusively for the first six months of life.⁶

In a 2005 randomized controlled trial, Beilin *et al.*⁷ observed that parous women (who had previously breastfed a child for at least 6 weeks) assigned to receive high-dose labor epidural fentanyl (cumulative dose greater than 150 μg) were more likely to stop breastfeeding 6 weeks postpartum than women assigned to receive less fentanyl or no fentanyl. Further, 24-h neonatal neurobehavioral scores were lowest in the infants of women in the high-dose epidural fentanyl group. In contrast, in a secondary analysis of a large randomized controlled trial, Wilson *et al.*⁸ concluded that labor epidural analgesia, with or



“[These results] provide further support of a favorable risk/benefit ratio for the addition of fentanyl to labor epidurals.”

without epidural fentanyl, did not negatively affect the initiation or duration of breastfeeding. A 2016 systematic review⁹ of 23 studies (of which only three were randomized controlled trials) did not make any definitive conclusions regarding the relationship between labor epidural analgesia and breastfeeding success.

In this issue of *ANESTHESIOLOGY*, Lee *et al.*¹ report the results of a randomized, double-blind, controlled trial of parous women who had previously and successfully breastfed a child, who planned to breastfeed again, and who requested labor epidural analgesia. These women were randomly assigned to receive epidural bupivacaine with no fentanyl or either 1 $\mu\text{g}/\text{ml}$ or 2 $\mu\text{g}/\text{ml}$ of fentanyl; the concentration of bupivacaine was 1 mg/ml, 0.8 mg/ml, or 0.625 mg/ml, respectively. The frequency of breastfeeding at 6 weeks postpartum was similarly high in the three groups (97, 98, and 94%, respectively). Likewise, there was no difference among groups in the frequency of breastfeeding at 3 months postpartum (94, 96, and 88%, respectively). Certified lactation consultants used a validated assessment tool, LATCH¹⁰ (Latch, Audible swallowing, Type of nipple, Comfort, and Hold/help), to assess breastfeeding on the first postpartum day. There was no difference among groups in LATCH scores or the estimated cumulative maternal-to-infant skin contact time over the first 24 h after delivery.

The report by Lee *et al.*¹ is a model of good study design and writing clarity. I applaud the investigators for limiting their conclusions to the conditions of the present study, namely: “Among *motivated parous women with a previous history of successful breastfeeding*, epidural analgesia maintained with an analgesia solution that contains fentanyl did not have adverse effects on breastfeeding outcomes”¹ (italics added). The authors acknowledged that the study subjects delivered in a relatively resource-rich environment with a strong commitment to support breastfeeding.

Image: J. P. Rathmell.

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But this study has several limitations, some of which were acknowledged by the authors. First, the study was limited to motivated parous women who had previous success with breastfeeding. Second, the number of women exposed to a cumulative epidural fentanyl dose greater than 150 µg was low (19%). This was a result of several factors, including the use of a combined spinal-epidural technique to initiate analgesia, as well as the relatively brief duration of epidural infusion (mean duration of 207, 216, and 197 min in the three groups, respectively). In contrast, in many institutions that allow early administration of epidural analgesia, it is not uncommon for nulliparous women undergoing induction of labor to receive an epidural infusion for 12 to 24h, and even longer, which results in the epidural administration of much larger cumulative doses of fentanyl. Third, almost all of the study subjects delivered vaginally; incredibly, only one of 332 women delivered by cesarean! Fourth, the study did not include a group that did not receive epidural analgesia. Finally, I would raise the potential for a Hawthorne effect, which may be defined as “the appearance or disappearance of a phenomenon on initiation of a study to confirm or exclude its existence.”¹¹ Did patient enrollment in this study, followed by a systematic assessment of breastfeeding success and duration, enhance patient motivation to breastfeed, and did it result in the application of greater resources to encourage and support breastfeeding?

In light of conflicting evidence regarding a potential relationship between labor epidural fentanyl analgesia and breastfeeding success, what are the implications for the practicing anesthesiologist? A 2005 editorial¹² (which accompanied the article by Beilin *et al.*⁷) stated: “It is difficult to find an obvious physiologic or pharmacologic mechanism by which [intrapartum epidural] fentanyl might influence the incidence of breast-feeding 6 weeks after delivery.” It is important to emphasize the well-established, tangible benefit of adding an opioid such as fentanyl to the epidural local anesthetic infusate. Specifically, the addition of fentanyl to the local anesthetic solution allows administration of a lower concentration and smaller total dose of local anesthetic, which results in a reduced incidence and severity of maternal motor block, and which likely reduces any negative impact of epidural analgesia on the risk of instrumental vaginal delivery. The study by Lee *et al.*¹ provides further support of a favorable risk/benefit ratio for the addition of fentanyl to the labor epidural infusate.

But Lee *et al.*¹ correctly stated that “it is important to ensure [that] our anesthetic interventions do not impede the mother’s or infant’s ability to breastfeed.” What might be the impact of epidural administration of much larger doses of fentanyl during prolonged labor in nulliparous women with no history of successful breastfeeding? Are there mechanisms—direct or indirect—by which labor neuraxial analgesia might negatively influence breastfeeding success? Further study would be welcome.

Meanwhile, I suggest that all of us who provide care for obstetric patients should ask an additional question: “As a

peripartum physician committed to holistic maternal and infant health, what can I do to encourage and support breastfeeding by my obstetric patients?” I recently posed this question to some of my institution’s labor nurses and midwives. They were delighted that I asked the question, and constructive conversations have followed. At a minimum, I look forward to taking a more proactive approach to facilitate and encourage early maternal-infant skin-to-skin contact in the operating room during/after cesarean delivery—an intervention that enhances breastfeeding success.¹³ And just as I have made smoking cessation counseling a part of my preanesthetic assessment before elective surgery, I will now look for opportunities to encourage and support breastfeeding by my obstetric patients. Anesthesiologist encouragement of breastfeeding intersects and overlaps with postpartum analgesia and enhanced-recovery-after-delivery protocols, as well as strategies to reduce postpartum opioid use before and after hospital discharge. All anesthesiologists who provide care for obstetric patients would do well to be champions for a culture that supports breastfeeding.

Competing Interests

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ANESTHESIOLOGY REFLECTIONS FROM THE WOOD LIBRARY-MUSEUM

From Darting Game to Darting Pain: How Benumbing Aconite Paved the Way for Local Anesthetics



From the buttercup family, Eurasia's most lethal plant genus, *Aconitum*, has figured prominently in Greek, Hindu, and Chinese traditions. Ancient Greek mythology had aconite drooling from Cerberus, the three-headed hound of Hades. According to Hindu tradition, after turning blue from drinking the world's poisons, the deity Shiva dripped a little poison onto the blue aconite plant. In some traditional Chinese battles, arrow shafts smeared with aconite poisoned would-be rescuers as they removed arrows from the impaled. Surveying east to west, hunting with aconite-tipped projectiles has proven toxic (Greek *toxikòn phármakon*: archer's bow poison) to Pacific whales, Japanese brown bears, Siberian ibex, Bengal tigers, and Grecian wolves. Ironically, the *canine* association of aconite ("wolfsbane")—with marauding wolves or rabid dogs—was not lost upon dentists, who used the potentially deadly herb to numb aching cavities in patients' dogteeth (canines) and other teeth. "Powdered Aconite Root" was bottled (*left*) as a dubious external remedy against tetanus and as a neurotoxic local anesthetic. Before numbing with cocaine or novocaine or lidocaine... doctors were numbing with aconite. (Copyright © the American Society of Anesthesiologists' Wood Library-Museum of Anesthesiology.)

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